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10/677,870	10/03/2003	Masamichi Iketani	038920.50634D1	9828

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EXAMINER
VERDIER, CHRISTOPHER M

ART UNIT	PAPER NUMBER
3745	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/677,870	**Applicant(s)** IKETANI, MASAMICHI	
	Examiner Christopher Verdier	**Art Unit** 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *4-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☒ Certified copies of the priority documents have been received in Application No. 09/989,520.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Applicants' Amendment dated October 26, 2004 has been carefully considered but is deemed non-persuasive. Claims 4-6 are pending. Applicants' argument a new oath/declaration identifying the specification to which it is directed is not required because the instant application is a divisional application has been considered and is persuasive. Applicants' comment that an amendment to the specification was made in the transmittal to provide the first paragraph providing the continuing data is correct. Applicant is thanked for pointing out these matters.

With regard to Takenaka, Repella, and Johnen, Applicants have argued that these seals in these reference are not for water pumps. This argument is not persuasive, because Takenaka, Repella, and Johnen all disclose lip-type shaft seals, which are analogous to lip-type shaft seals in water pumps, because a water pump similarly includes a shaft. Applicants' argument that the figures of Tanaka, Repella, and Johnen only disclose that the amount of elastic seal deformation of the second seal lip is regulated, but that there is no explanation in the specifications thereof, is not persuasive. One of ordinary skill in the art would have readily recognized from figure 1 of Takenaka, figure 1 of Repella, and figure 1 of Johnen that the dotted positions of the seals show the amount of elastic deformation of the lip, which occurs when the tip edge of the lip comes in contact with the outer peripheral surface of the rotating shaft, is at least 1/10 and up to 7/10 the height of the second seal lip in a free state, as set forth below. With regard to Applicants' argument that the problem to be solved in the present invention is not taught by these references, the examiner disagrees, because Tanaka, Repella, and Johnen all teach specific values of the above amount of elastic deformation as a value one of ordinary skill in the art would considered to provide adequate sealing. In addition, it does not matter that a reference does not solve the same problem that the claimed invention is solving or that the suggestion for combining the prior art is to achieve an end or purpose different from that which the applicants may have had in mind. *In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990); *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979). So long as there is a valid basis in the reference teachings themselves for the combination, a conclusion of obviousness grounded on that basis is appropriate.

Applicants' argument that Japanese Patent 10-331,985 relates to a sealing arrangement wherein a groove is recessed into the surface of a machine element, such as a shaft or a barrel ring of a cassette seal, such that the groove returns a medium, which relates to regulation of the groove, which is different from the regulation of a slinger made from a metal plate and formed by bending the plate as in the claimed invention, is not persuasive. Figure 2 of the Japanese Patent 10-331,985 relates to a cassette-type seal as set forth in the English translation thereof, which refers generally to the compact arrangement of the seal generally indicated at 18, and not a seal for a cassette type tape. Therefore, the teachings of Japanese Patent 10-331,985 are considered to be applicable to the claimed invention. Although Japanese Patent 10-331,985 discloses that grooves are provided for returning the medium, as set forth above, figure 2 teaches that the roughness of a section of an outer peripheral surface 10 of an outer-diameter-side cylindrical section 17 with which a tip edge of a lip seal 3 comes in sliding contact is from 0.5 um to 2.0 um in the arithmetic mean Ra, or is from 0.2 um to 10.0 um in the maximum height Ry, for the purpose of improving sealing performance. As set forth above, it does not matter that a reference does not solve the same problem that the claimed invention is solving or that the suggestion for combining the prior art is to achieve an end or purpose different from that which the applicants may have had in mind. *In re Beattie*, 974 F.2d 1309, 24 USPQ2d 1040 (Fed. Cir. 1992); *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990); *In re Wiseman*, 596 F.2d 1019, 201 USPQ 658 (CCPA 1979). So long as there is a valid basis in the reference teachings themselves for the combination, a conclusion of obviousness grounded on that basis is appropriate. With regard to Applicants' argument that the Japanese Patent 10-331,985 is different from the regulation of a slinger made from a metal plate and formed by bending the plate as in the claimed invention, slingers made from metal plate and formed by bending are conventional, as taught by Hosoda, later below.

Terminal Disclaimer

The terminal disclaimer filed on November 18, 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent 6,712,580 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Information Disclosure Statement

The information disclosure statement filed October 3, 2003 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of Japanese Patent 1-035,982 which is not in the English language. The information in Japanese Patent 1-035,982 has not been considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 9-21,396 in view of Hosoda 6,682,076 and either (Takenaka 5,056,799 or Repella 4,155,560, or Johnen 2003/0189293) and Japanese Patent 10-331,985 . Japanese Patent 9-21,396 (figures 1 and 3) discloses a water pump comprising an unnumbered housing having an inner peripheral surface, an outer-ring raceway 1011 that is formed around a separate outer ring 101 around the inner peripheral surface of this housing, a rotating shaft 12 having an outer peripheral surface formed with an inner-ring raceway 121, a plurality of rolling elements 13 rotatably located between the outer-ring raceway and inner-ring raceway, a seal ring 161 having an outer peripheral edge (not numbered in figure 3) fastened to the inner peripheral surface of the outer ring at one end thereof, a slinger 162 having an outer peripheral surface (not numbered in figure 3) and fitted around the rotating shaft 12, a pulley 130 fastened to the rotating shaft at an outer end thereof, an impeller 14 fastened to the rotating shaft at an inner end thereof, a mechanical seal 150 provided between the inner peripheral surface of the housing and the outer peripheral surface of the rotating shaft and axially between the impeller 14 and the slinger, and an unnumbered space provided axially between the mechanical seal and the seal ring, with the slinger 162 having an outer peripheral edge (near 1621 or 1623) formed with an outer-diameter-side cylindrical section which is concentric with the rotating shaft and has an outer peripheral surface near 1621 or 1623, the seal ring comprising a first seal lip 1612 that comes in sliding contact with the outer peripheral surface of the slinger, and a second seal lip 1613 or 1614 that has a tip edge which comes in sliding contact with the outer peripheral surface near 1621 or outer peripheral surface 1623 of the outer-diameter-side cylindrical section, respectively, and that is tilted inward in the radial direction toward the tip edge thereof. However, the Japanese Patent 9-21,396 does not disclose that the slinger is made from a metal plate, and does not disclose that the amount of elastic deformation of the second seal lip, which occurs when the tip edge of the second seal lip comes in contact with the outer peripheral surface of the outer-diameter-side cylindrical section, is at least 1/10 and up to 7/10 the height of the second seal lip in a free state, and does not disclose that the roughness of a section of the outer peripheral surface of the outer-diameter-side cylindrical section with which where the tip edge of the second seal lip comes in sliding contact is from 0.2 um to 2.0 um in the arithmetic mean Ra, or is from 0.8 um to 8.0 um in the maximum height Ry.

Hosoda (figure 1) shows a seal and slinger combination, with the slinger 3 being made of metal plate, for the purpose of providing a strong and durable material from which the slinger is made of.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to form the slinger of the Japanese Patent 9-21,396 such that it is formed of metal plate, as taught by Hosoda, for the purpose of providing a strong and durable material from which the slinger is made of. Note that the limitation in claims 4, 5, and 6 of the slinger being “formed by bending" is a product-by-process claim. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Takenaka (figures 1-4) shows a lip seal 6 for a rotating shaft 2, whereby the amount of elastic deformation of the lip, which occurs when the tip edge of the lip comes in contact with the outer peripheral surface of the rotating shaft, is about 50 percent of the height of the lip in a free state, as a value one of ordinary skill in the art would considered to provide adequate sealing. Repella (figure 2) shows a lip seal 54 for a rotating shaft 34, whereby the amount of elastic deformation of the lip, which occurs when the tip edge of the lip comes in contact with the outer peripheral surface of the rotating shaft, is about 57 percent of the height of the lip in a free state, as a value one of ordinary skill in the art would considered to provide adequate sealing. Johnen (figure 1) shows a lip seal 1 for a rotating shaft 3, whereby the amount of elastic deformation of the lip, which occurs when the tip edge of the lip comes in contact with the outer peripheral surface of the rotating shaft, is about 42 percent of the height of the lip in a free state, as a value one of ordinary skill in the art would considered to provide adequate sealing.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the second seal lip of the Japanese Patent 9-21,396 such that the amount of elastic deformation of the second seal lip, which occurs when the tip edge of the second seal lip comes in contact with the outer peripheral surface of the outer-diameter-side cylindrical section, is at either 50 percent, 57 percent, or 42 percent of the height of the second seal lip in a free state, as taught by either Takenaka, Repella, or Johnen, as values one of ordinary skill in the art would considered to provide adequate sealing.

The modified water pump of Japanese Patent 9-21,396 shows all of the claimed subject matter except for the roughness of a section of the outer peripheral surface of the outer-diameter-side cylindrical section with which where the tip edge of the second seal lip comes in sliding contact being from 0.2 um to 2.0 um in the arithmetic mean Ra, or is from 0.8 um to 8.0 um in the maximum height Ry.

Japanese Patent 10-331,985 (figure 2) teaches that the roughness of a section of an outer peripheral surface 10 of an outer-diameter-side cylindrical section 17 with which a tip edge of a lip seal 3 comes in sliding contact being from 0.5 um to 2.0 um in the arithmetic mean Ra, or is from 0.2 um to 10.0 um in the maximum height Ry, for the purpose of improving sealing performance.

It would have been further obvious at the time the invention was made to a person having ordinary skill in the art to form the modified water pump of Japanese Patent 9-21,396 such that the roughness of the section of the outer peripheral surface of the outer-diameter-side cylindrical section with which the tip edge of a the second seal lip comes in sliding contact is from 0.5 um to

2.0 um in the arithmetic mean Ra, or is from 0.2 um to 10.0 um in the maximum height Ry, as taught by Japanese Patent 10-331,985, for the purpose of improving sealing performance.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Verdier whose telephone number is (571) 272-4824. The examiner can normally be reached on Monday-Friday from 10:00-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward K. Look can be reached on (571) 272-4820. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C.V.
January 24, 2005

Christopher Verdier
Primary Examiner
Art Unit 3745